DISSIPATIVE PROCESSES IN $^{18}O + ^{9}Be$ AND $^{18}O + ^{181}Ta$ REACTIONS AT FERMI ENERGIES

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A study of peripheral nuclear collisions at Fermi energies with transport models is presented. It is motivated by experiments devoted to studying of isotopic yields in the reactions ^{18}O on ^{9}Be and ^{181}Ta at E/A = 35 MeV measured at very forward angles. The data show a two-component structure, one centered at beam velocity ("direct component") and another at lower velocities ("dissipative component"). It is shown that the transport calculations describe the general features of the dissipative component of the reaction. In our calculations we take into account the evaporation of the excited, primary projectile-like residues due to statistical decay. This improves the comparison of the results of the calculations with experiment. We find substantially different behavior of the dissipative component in the reactions with light and heavy target.

Keywords: deep inelastic reactions, transport models, Fermi energy.